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**Associations of Self-Compassion with Shame, Guilt, and Training Motivation after  
Sport-Specific Daily Stress – A Smartphone Study**

**Abstract**

By applying a diary study design, we investigated the role of self-compassion during sport-specific daily stress (SSDS) with regard to the negative self-conscious emotions of shame and guilt and training motivation. We hypothesised that self-compassion would protect athletes from certain self-conscious emotions, namely shame, after SSDS. We also predicted that self-compassion would either increase or decrease the relationship between stress and motivation. Ninety-six athletes ( $M_{age} = 22.14$ ,  $SD = 5.92$ ) reported their level of self-compassion and evaluated their trainings and/or competitions over three weeks in terms of experienced stress, guilt, shame and subsequent training motivation on their smartphones. Multilevel analyses showed that SSDS was associated with more negative self-conscious emotions and reduced training motivation. Moreover, self-compassion weakened the effect of SSDS on shame and was not correlated with training motivation. We discuss the results with regard to sport psychology practice and future research.

*Keywords:* self-compassion, diary study, ecological momentary assessment, self-conscious emotions

22

23 **Associations of Self-Compassion with Shame, Guilt, and Training Motivation after**24 **Sport-Specific Daily Stress – A Smartphone Study**

25

26 In the context of competitive sports, athletes experience situations that may cause  
27 stress, such as critical feedback from coaches and teammates, defeats in important games or  
28 criticism from the media (Benson & Bruner, 2018; Jones & Hardy, 1990; Oliveira et al.,  
29 2021). Some athletes report negative emotions and less motivation after experiencing stress  
30 (Kerr & Males, 2010) – emotions and motivation being important factors for athletes’  
31 performance and wellbeing (Hanin, 2000; Roberts & Treasure, 2012). However, the extent to  
32 which stress affects athletes is not the same for everyone (e.g., Kaiseler et al., 2009; Perry et  
33 al., 2015), and how people treat themselves seems to play a role in this process (Allen &  
34 Leary, 2010). One way of treating oneself in stressful moments is by being supportive and  
35 compassionate (i.e., self-compassion, Neff, 2003a, 2003b). Data from previous studies  
36 indicate that self-compassion has a positive effect on athletes, leading to fewer catastrophizing  
37 thoughts, less negative affect and less rumination in response to hypothetical and recalled  
38 severe setbacks in sport (Mosewich et al., 2013; Reis et al., 2015). This study investigated the  
39 role of self-compassion in performance athletes’ sport-specific daily stress (SSDS). SSDS  
40 refers to stress that is triggered by situations that are unique or intrinsic to the sport context  
41 and are common in a competitive sport setting. Examples of such situations include making  
42 simple mistakes in a training session, performing below one’s own expectations and receiving  
43 negative feedback. More specifically, we investigated how SSDS affects certain self-  
44 conscious emotions (i.e., shame and guilt) and training motivation and examined the role self-  
45 compassion plays in these processes.

46 Self-compassion describes a kind, supportive attitude towards oneself and is defined  
47 by the presence of three positive aspects (i.e., self-kindness, common humanity and

48 mindfulness) and the absence of three negative aspects (i.e., self-judgment, isolation, and  
49 over-identification, Neff, 2003a, 2003b). According to Neff (2003a, 2003b), self-kindness  
50 means treating oneself with kindness and understanding even when feeling inadequate,  
51 wishing for one's own wellbeing and adopting an accepting, non-judgmental attitude toward  
52 oneself. Common humanity refers to the awareness that unpleasant experiences are shared by  
53 all human beings (Neff, 2003a, 2003b). Mindfulness is a conscious awareness of one's own  
54 suffering, including psychological pain, and involves taking a balanced approach to  
55 unpleasant experiences so that painful feelings are not avoided or dramatized (Neff, 2003a,  
56 2003b). Self-judgment describes the tendency to display intolerance and self-condemnation in  
57 the face of one's own mistakes and difficult experiences, while isolation refers to the feeling  
58 of being separated from other people in the face of suffering and weaknesses (Neff, 2003a,  
59 2003b). Over-identification describes the tendency to be carried away and overwhelmed by  
60 negative experiences (Neff, 2003a, 2003b).

61         Given the constant evaluation competitive athletes experience in their lives (Mellalieu  
62 et al., 2009), this study investigated the effects of self-conscious emotions, namely shame and  
63 guilt. These self-conscious emotions play a role in self-evaluation processes and are a form of  
64 internal feedback that a specific goal, expectation or standard has not been achieved (Leary &  
65 Tangney, 2003). Shame arises from a negative assessment of the whole self and can therefore  
66 be particularly devastating (Dearing & Tangney, 2002). Guilt arises when a specific  
67 behaviour is evaluated as a violation of perceived social norms and expectations and therefore  
68 usually leads to more adaptive behaviour than shame (e.g., reparative behaviors, Dearing &  
69 Tangney, 2002). If an athlete attributes poor performance to their own ability and skills in  
70 general, this is more likely to lead to shame, whereas an athlete who attributes poor  
71 performance to a lack of effort is more likely to feel guilt (Tracy & Robins, 2006). Research  
72 suggests that these two self-conscious emotions should be considered separately (Anolli &  
73 Pascucci, 2005). This suggestion is underlined by findings showing that self-compassion in

74 athletes correlates negatively with shame proneness and unrelated to guilt proneness  
75 (Mosewich et al., 2011). Since self-compassion offers protection against harsh self-criticism  
76 and a global negative evaluation of the self (Neff, 2003b), it is likely that athletes with high  
77 self-compassion will feel less shame after SSDS than athletes with low self-compassion. On  
78 the other hand, feelings of guilt do not arise based on an overall evaluation of the person, but  
79 instead refer to a specific behaviour. Therefore, we do not assume that self-compassion affects  
80 the relationship between SSDS and guilt. To the best of our knowledge, no research has yet  
81 investigated how self-compassion affects the emotions athletes actually feel after SSDS.

82 Besides negative self-conscious emotions, this article examines another central factor  
83 in competitive sports, namely motivation. More precisely, we investigated the effect of SSDS  
84 on athletes' motivation for the following training session. Two hypotheses can be put forward  
85 regarding the role of self-compassion in this process: (1) a self-compassionate stance prevents  
86 a decrease in training motivation as a response to SSDS, and (2) a self-compassionate  
87 approach to stress leads to reduced motivation for the following training session. The first  
88 hypothesis is supported by experimental data from the academic context showing that  
89 reminding student participants to be self-compassionate about a test failure led them to spend  
90 more time studying for a subsequent test (Breines & Chen, 2012). One possible explanation  
91 for this result is that self-compassion could create an internal atmosphere of warmth and  
92 understanding, which encourages people to confront their mistakes and weaknesses without  
93 either self-deprecation or defensive self-enhancement (Neff, 2003b). We assume that this  
94 process could occur in the same way in competitive athletes because both the academic and  
95 the sport domains share some commonalities, such as high expectations and performance  
96 orientation and, therefore, appear comparable. Accordingly, self-compassion would also offer  
97 protection from a decrease in training motivation after SSDS, as it helps athletes not to  
98 disengage after unpleasant experiences. Regarding the second hypothesis, which states that a  
99 self-compassionate approach to stress leads to reduced motivation for the next training

100 session, existing qualitative research has shown that athletes expect self-compassion to have  
101 negative effects on motivational processes and thus assume that harsh self-criticism after a  
102 setback is needed to motivate themselves for the next training session (Sutherland et al.,  
103 2014). In other words, since self-compassion undermines this “kicking ass” function of self-  
104 criticism, the training motivation after SSDS events may also decrease. To the best of our  
105 knowledge, the relationship between self-compassion and training motivation after SSDS has  
106 not been investigated in the sport context.

107 This study investigates the effects of self-compassion on shame, guilt and training  
108 motivation after experiencing SSDS. We considered that stress experiences in training and  
109 competitions would lead to more shame and guilt and less training motivation, and we  
110 predicted that self-compassion would protect athletes from feeling shame (but not guilt) after  
111 SSDS. Based on the current diverging opinions on the effect of self-compassion on  
112 motivation, self-compassion might increase or decrease the stress-motivation relationship. An  
113 ecological momentary assessment (EMA) design using smartphones was applied, which made  
114 it possible to investigate athletes in their natural environment.

## 115 **Methods**

### 116 **Participants and Procedure**

117 Participants were recruited via a mailing list and social media. All data were collected  
118 in Switzerland. Eligibility criteria were a minimum age of 16 years and being in possession of  
119 a smartphone for data collection. To capture a sufficient number of events in a period that is  
120 both reasonable for the athletes and does not act as a disincentive to participation, a minimum  
121 of four training sessions and/or competitions per week (e.g., three training sessions and one  
122 game) was required. The study was advertised as a diary study investigating the relationships  
123 between personality, stress in training and competition, motivation and emotions. Interested  
124 athletes could access a website where the study and participants’ rights were described. After  
125 giving informed consent, participants provided demographic information and completed an

126 online questionnaire assessing self-compassion. In total, 141 athletes completed the baseline  
127 questionnaire ( $M_{age} = 21.52$ ,  $SD = 5.88$ ; 48% female). Subsequently, these athletes received  
128 detailed instructions via email on how to download and install the mquest app (cluetec GmbH,  
129 Karlsruhe, Germany) that we used to collect EMA data. All participants provided informed  
130 consent and the Institutional Review Board (internal ethics committee) approved the study.

131 We conducted event-based sampling over three weeks and asked the athletes to  
132 evaluate each training session and competition in terms of events that potentially caused  
133 stress. These events were subsequently assessed in terms of experienced stress. We also asked  
134 them the extent of shame and guilt they experienced and how motivated they were for the  
135 next training session. During the study, the participants received two reminders a day on their  
136 smartphones that the study was still running. After three weeks, the participants were  
137 informed that the study was finished and the app could be deleted. Upon completion of the  
138 study, all participants who provided EMA data were informed of the main hypothesis of the  
139 study, including an explanation of the self-compassion concept and a rough description of  
140 their individual self-compassion and SSDS scores.

141 To perform multilevel analyses, we included all athletes that rated at least two events,  
142 which meant the final sample consisted of 96 athletes ( $M_{age} = 22.14$ ,  $SD = 5.92$ ; 55% female;  
143  $M_{weeklytraininghours} = 12.00$ ,  $SD = 5.59$ , 26 different sports, 40% team sports). The three most  
144 common sports were football (21%), athletics (14%) and floorball (12%). The statement ‘I  
145 can keep up with the national champion in my sport’ was used to assess the subjective  
146 performance level and resulted in the following answers: 37% absolutely true, 33% almost  
147 true, 14% somewhat true, 9% almost not true and 7% absolutely not true. Participants that  
148 only completed the online questionnaires and did not start or complete the EMA (i.e.,  
149 dropouts) did not differ from the other participants regarding weekly training hours and self-  
150 compassion ( $t_s < 1.59$ ,  $p_s > .11$ ). However, there was a trend that dropouts were younger ( $t =$   
151  $1.82$ ,  $p = .07$ ) and more likely to be male ( $t = 2.46$ ,  $p < .02$ ).

## 152 **Measures**

### 153 ***Questionnaire***

154 Self-compassion was assessed using the German version of the 12-item Short Form of  
155 the Self-Compassion Scale (SCS-SF, Hupfeld & Ruffieux, 2011; Raes et al., 2011). Items  
156 were rated on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). There is  
157 currently a debate concerning the evaluation of the SCS-SF and its long version (Muris &  
158 Otgaar, 2020; Neff, 2020), discussing whether an overall score should be considered or  
159 whether the positive and negative aspects of self-compassion should be analysed separately.  
160 To investigate the possibility of whether positive and negative aspects of self-compassion  
161 influence reactions to SSDS differently, we analysed the positive and negative aspects in  
162 addition to the SCS-SF total score in corresponding subscales. The total score of the SCS-SF  
163 (SC<sub>tot</sub>) was calculated using the mean of the 12 items after reverse scoring the six items of  
164 the negative aspects (i.e., self-judgment, isolation and over-identification; Cronbach's  $\alpha =$   
165 .78). The subscale containing the positive aspects of self-compassion (SC<sub>pos</sub>) was calculated  
166 using the mean of the six items of the positive aspects (i.e., self-kindness, common humanity  
167 and mindfulness; Cronbach's  $\alpha = .66$ ). The subscale containing the negative aspects of self-  
168 compassion (SC<sub>neg</sub>) was calculated using the mean of the six items of the negative aspects  
169 (i.e., self-judgment, isolation and over-identification; Cronbach's  $\alpha = .79$ ). An example item  
170 for SC<sub>pos</sub> is 'When I'm going through a very hard time, I give myself the caring and  
171 tenderness I need'. An example item for SC<sub>neg</sub> is 'I'm disapproving and judgmental about  
172 my own flaws and inadequacies'.

### 173 ***Ecological Momentary Assessment Measures***

174 To assess SSDS, we asked the athletes how often (i.e., never, 1x, 2x, 3x, 4x, 5x or  
175 more) they experienced the following three *events* in the last training session or competition:  
176 (1) Others (e.g., coach, teammates, friends, etc.) pointed out things to me that I should be able  
177 to achieve according to my own standards; (2) I made a mistake that I should not make at my



178 level; (3) I performed below my expectations. Provided it happened at least once, we asked  
179 how much stress that particular event had caused (0 = *not at all* to 7 = *very much*). If no event  
180 occurred, we set the value for stress to 0. Our final SSDS score was calculated using the mean  
181 of the three event-related stress scores. We assessed the current level of *shame* and *guilt* using  
182 single items and asked participants to what extent they felt *ashamed* and *guilty*, respectively  
183 (0 = *not at all* to 7 = *very much*). Finally, athletes rated their *motivation for the next training*  
184 *session* (0 = *not at all motivated* to 7 = *very motivated*).

### 185 **Statistical Analysis**

186 We collected multilevel data, with repeated measures nested within individuals. This  
187 led to a two-level model with repeated measures at the first level and the individual athletes at  
188 the second level. We used maximum likelihood estimation (ML) and the R package “nlme” to  
189 run multilevel analyses. The alpha level to determine which results were significant was .05.

190 Between-subject predictors (i.e., SCtot, SCneg and SCpos) were centred at the grand  
191 mean. Perceived stress was not centred prior to the analyses because of the natural zero point  
192 of the scale. In the preliminary analyses, we tested the appropriateness of multilevel  
193 modelling using intraclass correlations (ICCs) for level-1 variables, as well as increases in  
194 model fit when adding random intercepts and random slopes. For our main analyses, we  
195 added the level-2 factors (i.e., SCtot, SCneg and SCpos) and the corresponding cross-level  
196 interactions to the model. The analyses were run for each level-1 variable (i.e., shame, guilt  
197 and training motivation) separately, once with SCtot only, and once with SCneg and SCpos.

## 198 **Results**

### 199 **Descriptive Statistics and Preliminary Analysis**

200 Regarding level-2 variables, there were no outliers (defined by a deviation greater than  
201 three standard deviations from the mean) in SCtot ( $M = 3.21$ ,  $SD = 0.58$ , skew = -0.20,  
202 kurtosis = -0.35), SCpos ( $M = 3.23$ ,  $SD = 0.58$ , skew = -0.30, kurtosis = -0.17) and SCneg ( $M$   
203 = 2.81,  $SD = 0.78$ , skew = 0.28, kurtosis = -0.59). SCpos und SCneg were significantly

204 negatively correlated ( $r = -.42, p < .001$ ). In total, 1,081 data points (89% stem from training)  
205 were collected from 96 participants. The mean amount of data points per person was 11.29  
206 ( $SD = 4.08$ , range 2–21). Regarding level-1 variables, mean *SSDS* was 2.16 ( $SD = 1.05$ , skew  
207 = 1.11, kurtosis = 1.29), mean *shame* was 1.67 ( $SD = 0.83$ , skew = 1.90, kurtosis = 4.14),  
208 mean *guilt* was 1.61 ( $SD = 0.88$ , skew = 2.10, kurtosis = 4.29), and mean *training motivation*  
209 was 6.49 ( $SD = 1.18$ , skew = -0.59, kurtosis = -0.01).

210 The percentage of variability in the repeated variables attributable to between-person  
211 influences was 41% in *SSDS*, 32% in *shame*, 38% in *guilt*, and 43% in *training motivation*.  
212 These ICCs suggested that level-2 variance must be considered in the analysis of the present  
213 data.

#### 214 **Associations Between Self-Compassion and Diary Measures**

215 Separate multilevel analyses showed that *SC*<sub>tot</sub> was significantly associated with both  
216 self-conscious emotions (*shame*:  $B = -0.550, SE = 0.134, p < .001$ ; *guilt*:  $B = -0.443, SE =$   
217  $0.148, p < .01$ ;) and *SSDS* ( $B = -0.637, SE = 0.171, p < .001$ ), and showed no association with  
218 *training motivation* ( $B = 0.284, SE = 0.205, p = .17$ ). Separating the two aspects of self-  
219 compassion showed that *SC*<sub>neg</sub> was significantly associated with both self-conscious  
220 emotions (*shame*:  $B = 0.523, SE = 0.093, p < .001$ ; *guilt*:  $B = 0.459, SE = 0.104, p < .001$ ) and  
221 *SSDS* ( $B = 0.606, SE = 0.120, p < .001$ ), and showed no association with *training motivation*  
222 ( $B = -0.155, SE = 0.152, p = .31$ ). By contrast, *SC*<sub>pos</sub> was unrelated to all four variables  
223 (*shame*:  $B = -0.143, SE = 0.144$ ; *guilt*:  $B = -0.046, SE = 0.155$ ; *SSDS*:  $B = -0.163, SE = 0.183$ ;  
224 *training motivation*:  $B = 0.282, SE = 0.204$ ; all  $ps > .17$ ).

#### 225 **Stress Reactivity**

##### 226 *Stress and Shame*

227 The relationship between *SSDS* and *shame* showed significant variance in intercepts  
228 across participants,  $SD = .16$  (95% CI: .06, .43),  $\chi^2(1) = 239.45, p < .0001$ . In addition, the

229 slopes varied across participants,  $SD = .29$  (.22, .39),  $\chi^2(2) = 135.18$ ,  $p < .0001$ , and the slopes  
230 and intercepts were negatively correlated,  $r = -.97$  (-1.00, .93).

231 The relationship between *shame* and SSDS is moderated by SCTot (Table 1) and  
232 SCneg, but not SCpos (Table 2). A simple slope test (Preacher et al., 2004) for this significant  
233 interaction between SCTot and SSDS revealed that among participants with low levels of SCTot  
234 (i.e., -1 *SD*), stress was significantly positively related to *shame* (slope = .627,  $z = 7.21$ ,  $p <$   
235 .001). Among participants with high levels of SCTot (i.e., +1 *SD*), there was also a significant,  
236 but weaker, positive relation (slope = .299,  $z = 4.34$ ,  $p < .001$ ; Figure 1). These findings are  
237 consistent with the results of the interaction between SCneg and SSDS (i.e., the higher SCneg,  
238 the stronger the stress-shame relationship). A simple slope test for this interaction revealed  
239 that among participants with high levels of SCneg (i.e., +1 *SD*), stress was significantly  
240 positively related to *shame* (slope = .534,  $z = 9.94$ ,  $p < .001$ ). Among participants with low  
241 levels of SCneg (i.e., -1 *SD*), there was also a significant, but weaker, positive relationship  
242 (slope = .292,  $z = 4.27$ ,  $p < .001$ ).

### 243 ***Stress and Guilt***

244 The relationship between SSDS and *guilt* showed significant variance in intercepts  
245 across participants,  $SD = .28$  (95% CI: .16, .50),  $\chi^2(1) = 307.96$ ,  $p < .0001$ . In addition, the  
246 slopes varied across participants,  $SD = .40$  (.31, .50),  $\chi^2(2) = 216.60$ ,  $p < .0001$ , and the slopes  
247 and intercepts were negatively correlated,  $r = -.97$  (-1.00, .26).

248 Tables 1 (for SCTot) and 2 (for both SCpos and SCneg) show the results for the two  
249 models on *guilt*. As expected in both models, on level 1, the degree of SSDS predicted the  
250 degree of guilt. However, neither the level-2 trait variables nor the cross-level interactions  
251 were significant. The interaction between SCTot x SSDS is barely statistically significant ( $p =$   
252 .057). The simple slope tests show a similar pattern to shame, namely, in participants with low  
253 levels of SCTot (i.e., -1 *SD*), stress was significantly positively related to *guilt* (slope = .525,  $z$

254 = 6.53,  $p < .001$ ). For participants with high levels of  $SC_{tot}$  (i.e., +1  $SD$ ), there was also a  
255 significant, but weaker, positive relationship (slope = .263,  $z = 2.80$ ,  $p < .01$ ).

### 256 *Stress and Training Motivation*

257 The relationship between SSDS and *training motivation* showed significant variance  
258 in intercepts across participants,  $SD = 1.00$  (95% CI: .81, 1.23),  $\chi^2(1) = 386.67$ ,  $p < .0001$ . In  
259 addition, the slopes varied across participants,  $SD = .14$  (.07, .27),  $\chi^2(2) = 8.69$ ,  $p < .05$ , and  
260 the slopes and intercepts were unrelated,  $r = -.09$  (-.54, .40).

261 Finally, the model predicting *motivation* by SSDS revealed only a level-1 effect for  
262 *SSDS*, namely a negative relationship between SSDS and *training motivation* (see Tables 1  
263 and 2).

## 264 **Discussion**

265 This study investigated the relationship between self-compassion, negative self-  
266 conscious emotions and training motivation after SSDS in a sample of competitive athletes.  
267 The analysed data were collected directly after training sessions and competitions via  
268 smartphones for three weeks, which allowed examination of the experiences of athletes in  
269 their day-to-day sport context. We found that (1) SSDS was associated with more negative  
270 self-conscious emotions and reduced training motivation, (2) positive and negative aspects of  
271 self-compassion showed different associations with SSDS and self-conscious emotions, (3)  
272 self-compassion helped to protect athletes from feeling shame after SSDS, and (4) self-  
273 compassion was uncorrelated with the motivation to train. The discussion is structured based  
274 on these four main findings, and we discuss their scientific and practical implications in each  
275 section.

276 The first main finding of the study shows that the more that athletes experience SSDS  
277 due to failure or poor performance, the likelier they are to feel guilty and ashamed, and the  
278 more they report reduced motivation for the next training session. These findings suggest that  
279 even comparatively harmless events in training and competition can trigger stress, which in

280 turn might have a negative effect on mood and training motivation. From a practical  
281 viewpoint, it is therefore important that coaches evaluate training sessions with their athletes  
282 and use appropriate debriefing techniques to cushion the blow of such negative effects (Hogg,  
283 2002). In addition, coaches could act as role models for adequate stress management, for  
284 example, by being compassionate with themselves and with athletes (Annerstedt & Lindgren,  
285 2014).

286 By evaluating the positive and negative aspects of self-compassion separately in  
287 addition to the total score using the respective subscales, we are able to make some  
288 differentiated statements about SSDS and the self-conscious emotions of shame and guilt. The  
289 second main finding of our study shows that the negative aspects and the total score, but not  
290 the positive aspects, of self-compassion were related to these three negative sensations. These  
291 results are in accordance with the results of Brenner et al. (2017), who reported positive  
292 connections between negative aspects of self-compassion and stress, anxiety and depression,  
293 while the positive aspects of self-compassion were only negatively related to depression.  
294 Thus, future studies could investigate whether the two aspects of self-compassion have  
295 differential or shared effects on certain/other outcomes. Such findings would help sport  
296 psychologists to determine whether to work on the negative or positive aspects of self-  
297 compassion or on both. Future studies could also use the long version of the Self-Compassion  
298 Scale, which consists of 26 items and six subscales, to investigate the influence of the six  
299 subcomponents of self-compassion separately (Neff, 2020).

300 The third main finding of our study shows that self-compassion buffered the effect of  
301 SSDS on shame. This buffer effect is explained by a low level of negative aspects of self-  
302 compassion. These findings suggest that a reduction in negative aspects of self-compassion,  
303 such as strong self-condemnation, might lead to less shame after the experience of stress in  
304 sport. A reduction in shame could be beneficial for athletes because shame is associated with,  
305 for example, poorer wellbeing and lower self-esteem (Velotti et al., 2017). Notably, we found

306 a very similar pattern for guilt as for shame, which suggests that shame and guilt are not as  
307 clearly separated as our hypotheses assumed. Future studies could investigate the extent to  
308 which self-compassion interventions with athletes reduce shame reactions and whether this, in  
309 turn, leads to corresponding changes in, for example, wellbeing. Future studies could also  
310 examine the influence of trait shame on coping with failure.

311 We assumed that self-compassion either cushions or enhances the negative effect of  
312 stress on training motivation. However, the fourth main finding from the data in this study  
313 shows that self-compassion does not influence training motivation (neither directly nor  
314 indirectly via changing the stress-motivation relationship). This finding indicates the athletes'  
315 concern that self-compassion is bad for training motivation is not justified. Nevertheless, self-  
316 compassion does not seem to protect athletes from a drop in training motivation after SSDS.  
317 In the repertoire of sport psychologists, self-compassion could be a valuable intervention.  
318 Thus far, no negative side effects have been shown, and there are various empirical  
319 indications of the positive effects of self-compassion (Röthlin et al., 2019). In addition to the  
320 potential protection from shame as reported here, self-compassion interventions lead to, for  
321 example, increased wellbeing (Zessin et al., 2015) and flow (Carraça et al., 2018) as well as  
322 reduced somatic competition anxiety (Röthlin & Leiggener, 2021).

323 Our study is a first important step in investigating the role of self-compassion in  
324 dealing with the everyday stress of athletes. However, this study also has certain limitations.  
325 First, it only encompasses a short period, and more research is necessary to examine the long-  
326 term effects. Second, since we assessed SSDS, negative self-conscious emotions and training  
327 motivation at the same time, we could not ascertain the direction of causality among these  
328 variables. Third, the Cronbach's  $\alpha$  value of the SCpos scale was slightly low. Finally, we did  
329 not cover all forms of SSDS and the situations we covered only triggered weak stress  
330 reactions overall. Future studies could investigate a wider range of sports-specific stressors  
331 that trigger stronger reactions. However, our study shows that even those situations that only

332 trigger weak stress reactions were associated with more guilt and shame and less motivation,  
333 and that self-compassion buffered the effect of stress on shame. Future studies should attempt  
334 to replicate in and extend these findings to different countries, cultures and samples (e.g.,  
335 adolescents, individual vs team sports, different sports, or performance levels).

#### 336 **Data availability statement**

337 The data that support the findings of this study are available from the corresponding  
338 author, [PR], upon reasonable request.

#### 339 **References**

- 340 Allen, A. B., & Leary, M. R. (2010). Self-compassion, stress, and coping. *Social and*  
341 *Personality Psychology Compass*, 4(2), 107–118. doi:10.1111/j.1751-  
342 9004.2009.00246.x
- 343 Annerstedt, C., & Lindgren, E.-C. (2014). Caring as an important foundation in coaching for  
344 social sustainability: a case study of a successful Swedish coach in high-performance  
345 sport. *Reflective Practice*, 15(1), 27-39. doi:10.1080/14623943.2013.869204
- 346 Anolli, L., & Pascucci, P. (2005). Guilt and guilt-proneness, shame and shame-proneness in  
347 Indian and Italian young adults. *Personality and Individual Differences*, 39(4), 763-  
348 773.
- 349 Benson, A. J., & Bruner, M. W. (2018). How teammate behaviors relate to athlete affect,  
350 cognition, and behaviors: A daily diary approach within youth sport. *Psychology of*  
351 *Sport and Exercise*, 34, 119-127. doi:10.1016/j.psychsport.2017.10.008
- 352 Breines, J. G., & Chen, S. (2012). Self-compassion increases self-improvement motivation.  
353 *Personality and Social Psychology Bulletin*, 38(9), 1133-1143.  
354 doi:10.1177/0146167212445599
- 355 Carraça, B., Serpa, S., Rosado, A., & Palmi, J. (2018). The mindfulness-based soccer program  
356 (MBSoccerP): Effects on elite athletes. *Cuadernos de Psicología del Deporte*, 18(3),  
357 62-85.
- 358 Dearing, R. L., & Tangney, J. P. (2002). *Shame and guilt*. New York London: Guildford  
359 Press.

- 360 Hanin, Y. L. (2000). *Emotions in sport*. Champaign, IL: Human Kinetics.
- 361 Hogg, J. M. (2002). Debriefing: A means to increasing recovery and subsequent performance.  
362 In M. Kellmann (Ed.), *Enhancing recovery: Preventing underperformance in athletes*  
363 (pp. 181-198). Champaign, IL: Human Kinetics.
- 364 Hupfeld, J., & Ruffieux, N. (2011). Validierung einer deutschen version der Self-Compassion  
365 Scale (SCS-D). *Zeitschrift für Klinische Psychologie und Psychotherapie*, 40(2), 115–  
366 123. doi:10.1026/1616-3443/a000088
- 367 Jones, J., & Hardy, L. E. (1990). *Stress and performance in sport*. New York, NY: Wiley.
- 368 Kaiseler, M., Polman, R., & Nicholls, A. (2009). Mental toughness, stress, stress appraisal,  
369 coping and coping effectiveness in sport. *Personality and Individual Differences*,  
370 47(7), 728-733. doi:10.1016/j.paid.2009.06.012
- 371 Kerr, J. H., & Males, J. R. (2010). The experience of losing: Qualitative study of elite lacrosse  
372 athletes and team performance at a world championship. *Psychology of Sport and*  
373 *Exercise*, 11(5), 394-401. doi:10.1016/j.psychsport.2010.04.014
- 374 Leary, M. R., & Tangney, J. P. (2003). The self as an organizing construct in the behavioral  
375 and social sciences. *Handbook of self and identity*, 15, 3-14.
- 376 Mellalieu, S. D., Neil, R., Hanton, S., & Fletcher, D. (2009). Competition stress in sport  
377 performers: Stressors experienced in the competition environment. *Journal of Sports*  
378 *Sciences*, 27(7), 729-744. doi:10.1080/02640410902889834
- 379 Mosewich, A. D., Crocker, P. R., Kowalski, K. C., & DeLongis, A. (2013). Applying self-  
380 compassion in sport: An intervention with women athletes. *Journal of Sport &*  
381 *Exercise Psychology*, 35(5), 514–524. doi:10.1123/jsep.35.5.514
- 382 Mosewich, A. D., Kowalski, K. C., Sabiston, C. M., Sedgwick, W. A., & Tracy, J. L. (2011).  
383 Self-compassion: A potential resource for young women athletes. *Journal of Sport &*  
384 *Exercise Psychology*, 33(1), 103–123. doi:10.1123/jsep.33.1.103
- 385 Muris, P., & Otgaar, H. (2020). The process of science: A critical evaluation of more than 15  
386 years of research on self-compassion with the Self-Compassion Scale. *Mindfulness*,  
387 11(6), 1469-1482. doi:10.1007/s12671-020-01363-0
- 388 Neff, K. D. (2003a). The development and validation of a scale to measure self-compassion.  
389 *Self and Identity*, 2(3), 223–250. doi:10.1080/15298860309027



- 390 Neff, K. D. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude  
391 toward oneself. *Self and Identity*, 2(2), 85–101. doi:10.1080/15298860309032
- 392 Neff, K. D. (2020). Commentary on Muris and Otgaar (2020): Let the Empirical Evidence  
393 Speak on the Self-Compassion Scale. *Mindfulness*, 1-10. doi:10.1007/s12671-020-  
394 01411-9
- 395 Oliveira, S., Trindade, I. A., Rosado, A., Cunha, M., & Ferreira, C. (2021). Development and  
396 initial validation of athletes' perceptions of coach-related critical attitudes scale.  
397 *Current Psychology*, 1-10. doi:10.1007/s12144-020-01325-8
- 398 Perry, J., Nicholls, A. R., & Levy, A. R. (2015). Emotional maturity, dispositional coping, and  
399 coping effectiveness among adolescent athletes. *Psychology of Sport & Exercise*, 17,  
400 32-39. doi:10.1016/j.psychsport.2014.11.004
- 401 Preacher, K. J., Curran, P. J., & Bauer, D. J. (2004). Simple intercepts, simple slopes, and  
402 regions of significance in MLR 2-way interactions. Retrieved from  
403 <http://quantpsy.org/interact/hlm2.htm>
- 404 Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial  
405 validation of a short form of the Self-Compassion Scale. *Clinical Psychology &*  
406 *Psychotherapy*, 18, 250–255. doi:10.1002/cpp.702
- 407 Reis, N. A., Kowalski, K. C., Ferguson, L. J., Sabiston, C. M., Sedgwick, W. A., & Crocker,  
408 P. R. (2015). Self-compassion and women athletes' responses to emotionally difficult  
409 sport situations: An evaluation of a brief induction. *Psychology of Sport and Exercise*,  
410 16(3), 18–25. doi:10.1016/j.psychsport.2014.08.011
- 411 Roberts, G. C., & Treasure, D. (2012). *Advances in motivation in sport and exercise*. Leeds,  
412 UK: Human Kinetics.
- 413 Röthlin, P., Horvath, S., & Birrer, D. (2019). Go soft or go home? A review of empirical  
414 studies on the role of self-compassion in the competitive sport setting. *Current Issues*  
415 *in Sport Science (CISS)*. doi:10.15203/CISS\_2019.013
- 416 Röthlin, P., & Leiggener, R. (2021). Self-compassion to decrease performance anxiety in  
417 climbers: A randomized control trial. *Current Issues in Sport Science*.
- 418 Sutherland, L. M., Kowalski, K. C., Ferguson, L. J., Sabiston, C. M., Sedgwick, W. A., &  
419 Crocker, P. R. (2014). Narratives of young women athletes' experiences of emotional

- 420 pain and self-compassion. *Qualitative research in sport, exercise and health*, 6(4),  
421 499–516. doi:10.1080/2159676X.2014.888587
- 422 Tracy, J. L., & Robins, R. W. (2006). Appraisal antecedents of shame and guilt: Support for a  
423 theoretical model. *Personality and Social Psychology Bulletin*, 32(10), 1339-1351.
- 424 Velotti, P., Garofalo, C., Bottazzi, F., & Caretti, V. (2017). Faces of shame: Implications for  
425 self-esteem, emotion regulation, aggression, and well-being. *The Journal of*  
426 *Psychology*, 151(2), 171-184.
- 427 Zessin, U., Dickhauser, O., & Garbade, S. (2015). The relationship between self-compassion  
428 and well-being: A meta-analysis. *Applied Psychology: Health and Well-Being*, 7(3),  
429 340–364. doi:10.1111/aphw.12051  
430  
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Table 1. Estimates of fixed effect of multilevel models predicting guilt, shame, and training motivation including the total scale of the SCS

	B	SE	95% CI
<u>shame</u>			
Level 1			
Intercept	0.726 ***	0.066	0.598 to 0.437
Stress	0.420 ***	0.045	0.330 to 0.510
Level 2			
SCtot	0.172	0.107	-0.041 to 0.385
Cross-level interactions			
SCtot x stress	-0.209 **	0.074	-0.355 to -0.063
<u>guilt</u>			
Level 1			
Intercept	0.735 ***	0.070	0.600 to 0.869
Stress	0.394 ***	0.055	0.288 to 0.450
Level 2			
SCtot	0.152	0.112	-0.069 to 0.375
Cross-level interactions			
SCtot x stress	-0.168	0.088	-0.342 to 0.005
<u>training motivation</u>			
Level 1			
Intercept	6.814 ***	0.136	6.546 to 7.083
Stress	-0.167 ***	0.041	-0.246 to -0.087
Level 2			
SCtot	0.186	0.261	-0.275 to -0.647
Cross-level interactions			
SCtot x stress	-0.010	0.081	-0.137 to -0.116

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 2. Estimates of fixed effect of multilevel models predicting guilt, shame, and training motivation including negative and positive aspects of self-compassion

	B	SE	95% CI
<u>shame</u>			
Level 1			
Intercept	0.738 ***	0.066	0.609 to 0.867
Stress	0.414 ***	0.045	0.325 to 0.503
Level 2			
SCpos	0.116	0.128	-0.138 to 0.370
SCneg	-0.058	0.092	-0.239 to 0.124
Cross-level interactions			
SCpos x stress	-0.046	0.088	-0.219 to 0.127
SCneg x stress	<u>0.140 *</u>	0.061	0.021 to 0.258
<u>guilt</u>			
Level 1			
Intercept	0.742 ***	0.070	0.605 to 0.878
Stress	0.394 ***	0.055	0.287 to 0.502
Level 2			
SCpos	0.225	0.135	-0.043 to 0.492
SCneg	0.028	0.097	-0.164 to 0.219
Cross-level interactions			
SCpos x stress	-0.032	0.106	-0.269 to 0.145
SCneg x stress	0.099	0.074	-0.045 to 0.244
<u>training motivation</u>			
Level 1			
Intercept	6.825 ***	0.136	6.558 to 7.092
Stress	-0.174 ***	0.041	-0.254 to -0.093
Level 2			
SCpos	0.161	0.261	-0.357 to 0.678
SCneg	-0.038	0.193	-0.420 to 0.344
Cross-level interactions			
SCpos x stress	0.043	0.081	-0.116 to 0.202
SCneg x stress	0.029	0.053	-0.073 to 0.133

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

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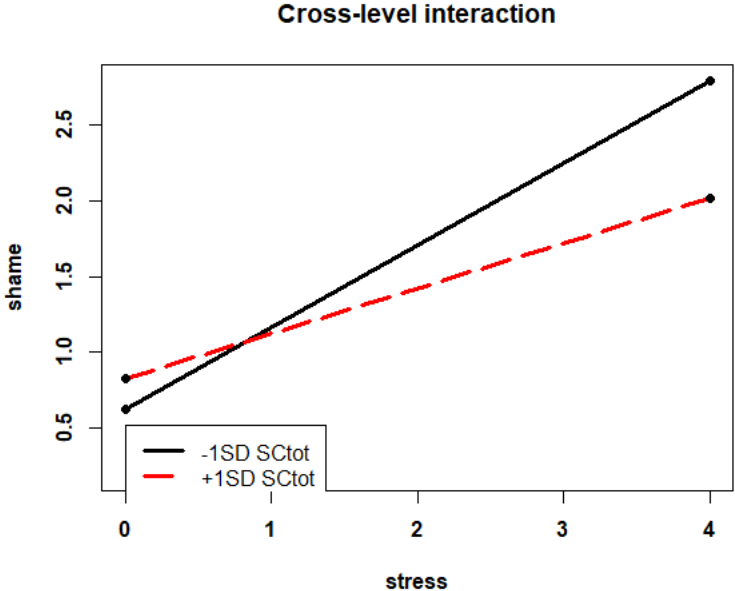
435

436 **Figure caption**

437 Figure 1. Cross-level interaction between self-compassion, shame, and sport-specific daily

438 stress

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